

Claims

1. A method of testing the bond strength of an electrically conductive ball adhered to a substrate, and comprising the steps of gripping the ball with a test tool, moving the ball in a direction substantially orthogonal to the plane of adherence of the ball whilst urging the substrate lightly against the ball, and abruptly halting the substrate.
2. A method of testing according to claim 1 and including the preparatory step of clamping the substrate to a platen, whereby the platen is abruptly halted, thereby indirectly halting the substrate.
3. A method of testing according to claim 1 or claim 2 and including the step of providing a pneumatic ram to urge the substrate against the ball, and applying air under pressure to the ram in an amount sufficient to ensure a light compressure load between the ball and substrate up to the time when said substrate is abruptly halted.
4. Apparatus for tensile testing of the bond of an electrically conductive ball adhered to a substrate, and comprising a frame (11), a gripper (22) for gripping a ball (20) adhered to a substrate (19), apparatus for moving said gripper (22) on an axis substantially orthogonal to the plane of adherence, urging apparatus (16, 17) of said frame for lightly urging said substrate on said axis towards said gripper, and an abutment (14) of said frame for said substrate, whereby in use the substrate and ball are adapted to move in unison on said axis until the substrate is restrained by said abutment (14).
5. Apparatus according to claim 4 wherein said urging apparatus comprises a pneumatic ram (16, 17).
6. Apparatus according to claim 4 or claim 5 wherein said urging apparatus (16, 17) includes a platen (18) for said substrate.

7. Apparatus according to claim 6 and further including a clamp device to releasably restrain a substrate on said platen (18).
8. Apparatus according to any of claims 4-7 and adapted to provide said abutment by said direct contact between said frame (33) and said ram (34).
9. Apparatus according to any of claims 4-7 and adapted to provide said abutment by direct contact between said frame (14) and substrate (19).
10. Apparatus according to claim 6 or claim 7 and adapted to provide said abutment by direct contact between said frame and platen.